

Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE AUG 2004		2. REPORT TYPE		3. DATES COVERED 00-07-2004 to 00-08-2004	
4. TITLE AND SUBTITLE What is Joint Interdependence Anyway?				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Combined Arms Center -Knowledge,Military Review,294 Grant Ave BG 77,Fort Leavenworth,KS,66027				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 3	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

What is Joint Interdependence Anyway?

Colonel Christopher R. Paparone, U.S. Army, and James A. Crupi, Ph.D.

THERE IS MUCH ADO lately about the concept of “joint interdependence” in future military operations. More than one four-star general has praised Operation Desert Storm’s joint deconfliction; that is, the conduct of relatively independent service operations orchestrated in space and time so as not to interfere with each other, as in air operations deconflicted with ground operations. In Operation Iraqi Freedom, U.S. forces achieved more joint interoperability with a variety of forces working together to a greater degree because processes were clear, such as using U.S. Air Force close air support in lieu of U.S. Army artillery. But, generals say the future of jointness is interdependence, with no service operating independently and all relying on each other’s capabilities to be successful.

We are not completely satisfied with this vision of future joint interdependence. We are concerned that military leaders might inadvertently miss the leadership and organizational implications associated with interdependence. Instead of the discussion oriented on deconfliction, interoperability, and interdependence, we propose a more meaningful way to talk about the continuum of interdependence. We believe there are varying degrees of interdependence, each of which affects differently how the military organizes, leads, and achieves.

The concept of interdependence might be best understood as a metaphor taken from the biological sciences. In biology, interdependence describes relationships for survival of an organism. Biology also describes complex or recursive variables that mutually affect each other. For example, human organs are interdependent—the liver cleanses the blood that the heart pumps. Other organisms and features of the environment are also interdependent. Animals breathe out carbon dioxide, which trees transform into oxygen.

People use similar metaphors in theology to indicate similar social meanings, such as, “No man is an island,” which is derived from John Donne’s famous Christian meditation: “All mankind is of one author, and is one volume; when one man dies, one

chapter is not torn out of the book, but translated into a better language; and every chapter must be so translated. . . . As therefore the bell that rings to a sermon, calls not upon the preacher only, but upon the congregation to come.”¹

Students of organizations have adapted these metaphors of interdependence and applied them to open social systems. In *Organization in Action*, James D. Thompson describes three types of interdependence (from the least to the most complicated):

1. Pooled interdependence, where separate organizations, which perform adequately on their own, might fail if one or more of the others fail. Failure threatens all.

2. Sequential interdependence, which is linear like a supply chain or assembly line. One unit in the chain produces something necessary for the next unit, and so forth.

3. Reciprocal interdependence, where the output of one organization becomes the input for others and vice versa.² Organizations become less distinguishable from each other and their combined performance requires complex forms of coordination.

The services have always faced problems in which each member’s competencies and skills did not provide the most desirable solution. Using Thompson’s terminology, we best describe how the services organized for Operation Desert Storm primarily as pooled interdependence, not deconfliction.

Geographical boundaries separated air operations from ground operations, but sequential interdependence dominated during Operation Desert Shield. The Air Force and Navy delivered Army forces to ports of debarkation. The coalition’s air forces conducted air operations. Ground forces then conducted operations on the ground. Reciprocal interdependence occurred as well. The Army and Marines secured ports for the Navy and Air Force to conduct future missions and sustainment operations in Kuwait and southern Iraq.

Thompson maintains that when these services come together in joint configurations, they become a synthetic organization with a relatively short

lifespan (such as for disaster relief or combat operations) and emerge and organize based on the environmental conditions and the situation at hand.³ Figuring out ahead of time exactly what interdependencies will develop with synthetic organizations is not possible. Their design, which depends on the situation, evolves as circumstances change.

The challenge for senior military leaders is to design before engagement a joint interdependent force that will not need subsequent, recurrent reorganization yet will be flexible enough to adapt to rapid environmental changes in real time. Combatant commanders have an array of coordination tools at their disposal for the design effort. Commanders should build efficiencies associated with interdependencies *before* situations demand they do so. The easiest way to do this is to establish *standards* (rules, routines, processes, regulations, or procedures) that foster multiunit, interdependent relationships. Joint doctrine helps, as do institutional knowledge and lessons learned.

Developing *plans* to coordinate a series of decisions yet to be made is more complicated. This synchronization does not require the constraining routinization of standardization and is more appropriate in nonroutine situations, such as early in military operations when tasks change often.

The most complex process is coordinated *mutual adjustment*. The more uncertain and ambiguous the situation, the more likely commanders will use this form of coordination because they can manage it in real time as new information becomes available.⁴ In Army slang, this is acting on “audibles” (radio communications). The availability of new technologies has also led to the creation of new jargon for mutual adjustment, such as “common operating picture” and “digitized force.”

A complex relationship exists between the degree of interdependence and the degree of coordination

needed. First, with pooled interdependence, by-the-book standardization works just fine. Second, plans are well suited to situations where sequential interdependence is present. Third, the most demanding form of coordination—mutual adjustment—is based on continuous communication and decisionmaking and is best suited to situations where reciprocal interdependence is present. As information technologies advance and contemporary environments become more fluid, the more capable the joint force commander must become in facilitating adjustments during operations in real time. Note that the term “facilitate” replaces “command and control” in the case of reciprocal interdependence.

Different kinds of interorganizational conflicts (service rivalries) arise with each type of interdependence. Synthetic organizations in pooled interdependence (U.S. forces operating in the Pacific theater versus the European theater during World War II) experience conflict over resources and compete for them with little regard for each other’s needs; for example, which theater had priority resources for landing craft that were in short supply?

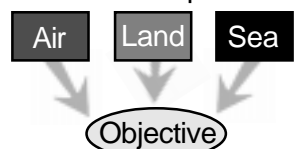
Organizations that operate in sequential interdependence rely on outputs from relatively independent organizations with little or no incentive to respond to the demands of dependent ones (such as the timeliness of close air support to Army units during operation Anaconda in Afghanistan).⁵ Organizations immersed in reciprocal interdependence can operate without conflict (as in the Marine air-ground task-force approach—one team, one fight). However, if one organization fails, punctuated discontent and blame will follow, such as the finger pointing of CIA direct action teams and joint “black” operations forces when things go wrong and as currently seen in the command controversy at Abu Ghraib Prison in Iraq.

From a bureaucratic organizational perspective, why would the Navy and Marines want to move from sequential to reciprocal interdependence with the Army when conducting combat operations?⁶ After all, U.S. maritime forces are semi-autonomous with air, land, and sea capabilities. Why should the Army expect anything from naval forces but pooled or sequential interdependence, at best?

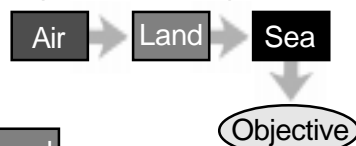
The same is true of the Air Force’s relationship with the Army. What could motivate the Navy and the Air Force to become more reciprocally interdependent with the Army? The answer might be that the Army now trains and equips its force with a capability that was formerly under the sole jurisdiction of Air Force controller

Thompson’s Three Types of Interdependencies

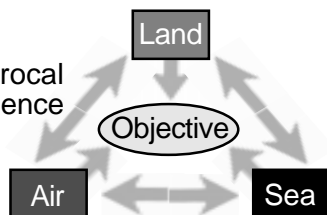
Pooled Interdependence



Sequential Interdependence



Reciprocal Interdependence



teams and air and naval gunfire liaison companies.

If soldiers can find joint-relevant targets and routinely do what specialized teams do, then the relevance of Air Force and naval fires becomes more reciprocally interdependent with the Army when servicing important Army-nominated targets. As long as Army-nominated targets have sufficient value to the joint force commander, naval and Air Force fires, in effect, compete for relevance in a more balanced, reciprocal, interdependent network of forces.

In postcombat operations, the Army is less interdependent on air and naval forces. Governmental and nongovernmental agencies enter the operational domain. At best, the Army commander is sequentially interdependent with these agencies, providing a stable environment in which they can operate as well as other nontraditional support such as logistics. Until the Army force commander sees a reciprocal interdependency with these agencies, the joint force cannot leverage the advantages (high adaptability, for example) of real-time mutual adjustment. With few standardized practices in place, pooled interdependence is crippled. Success is tied to the ability of these diverse organizations to create standards while executing ad hoc plans on the fly.

What generals and admirals really seem to be saying is that advanced information technology and the uncertain, turbulent, and highly interconnected environment has forced more reciprocal interdependence on the services. In short, the services intuitively recognize that they must get better at coordinated mutual adjustment because the type of interdependence needed is different from before.

At the flag officer level, however, that recognition, while important, is baseline. A more strategic recognition is necessary. A third wave of interde-

pendency brings with it a need to suppress the doctrine and old habits of hierarchical command and control because such doctrine and habits lead to flawed conclusions about how to design and organize U.S. forces. Of course, this is relevant only if the U.S. military does not move to the so-called "purple force," where the force is "born joint" and the services give way to a truly national service. At that point, any discussion of interdependence would address interdependent capabilities, not service-oriented interdependencies.

Also important is the relationship of efficiency, effectiveness, and interdependency. Inherent risks occur in moving swiftly toward vast reciprocal interdependencies in a joint world. The military might not want to rush toward business-like efficiencies in reciprocal relationships because doing so might endanger effectiveness. One of our military colleagues stated this issue succinctly: "Joint interdependence is aimed at efficiency as well as effectiveness. It strikes, to a degree, at the redundancy we have always enjoyed in developing and applying military capability. Military redundancy is not always efficient, but can be effective, since in the peculiar environment of war, business models are not always best."⁷

From the perspective of transformational leadership, reciprocal interdependence in joint military operations requires trust and reliability as mainstay values. Conventional hierarchical control undermines true reciprocal interdependence. As the U.S. military moves increasingly toward purer joint, combined, and interagency operations, it must find new ways to educate and develop leaders who can facilitate the nuanced intricacies of focused and mutually beneficial interdependence. **MR**

NOTES

1. John Donne, "Devotions Upon Emergent Occasions," Meditation XVII, on-line at <<http://phrases.shu.ac.uk/meanings/257100.html>>, accessed 24 February 2004.

2. James D. Thompson, *Organizations in Action: Social Science Bases of Administrative Theory* (New York: McGraw-Hill, 1967), 45-55.

3. *Ibid.*, 52-53.

4. *Ibid.*, 55-56.

5. See Colonel Frank Weircinski's comments in Austin Bay, "A Full Report on Operation Anaconda—America's First Battle of the 21st Century. A Complete After Action Interview with COL Weircinski," 27 June 2002, on-line at <<http://strategypage.com/pointpoint/articles/20020627.asp>>, accessed 5 March 2004.

6. John Bonin, personal correspondence to authors, 29 February 2004. Actually, there are often many hidden interdependencies among the services by virtue of law. U.S. Code,

Title 10, "Armed Forces" (on-line at <www4.law.cornell.edu/uscode/10/>, accessed 10 May 2004), mandates clear separation of capabilities. Combatant commanders have gained some authority to circumvent these legal separations (such as with logistics directive authority). Service force structure is driven by these requirements, such as the Army's requirement to provide Army support to other services (ASOS). The Marines are particularly dependent on ASOS for sustained land operations and on the Navy for medical, chaplain, and construction support. All services are sequentially interdependent on the Air Force for strategic airlift, strategic reconnaissance, and strategic attack assets. The Air Force is sequentially interdependent on the Army for inland surface transportation, air base security, construction support, in addition to seizing forward air bases (as in Iraq), and providing chemical, biological, and theater missile defense coverage.

7. Michael Matheny, personal correspondence with authors, 1 March 2004.

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